

additional tread and be laterally braced.

(ii) Sill steps shall be securely fastened with not less than ½-inch bolts with nuts outside (when possible) and riveted over, or with not less than ½-inch rivets.

(c) *Side handholds*—(1) *Number*. Four.

(2) *Dimensions*. Minimum diameter, five-eighths of an inch, wrought iron or steel. Minimum clear length, 16, preferably 24, inches. Minimum clearance, 2, preferably 2½, inches.

(3) *Location*. Horizontal or vertical, one near each end on each side of car over sill step.

(i) If horizontal, not less than 24 nor more than 30 inches above center line of coupler.

(ii) If vertical, lower end not less than 18 nor more than 24 inches above center line of coupler.

(4) *Manner of application*. Side handholds shall be securely fastened with bolts, rivets or screws.

(d) *End handholds*—(1) *Number*. Four.

(2) *Dimensions*. Minimum diameter, five-eighths of an inch, wrought iron or steel. Minimum clear length, 16 inches. Minimum clearance, 2, preferably 2½, inches.

(3) *Location*. Horizontal, one near each side on each end projecting downward from face of end sill or sheathing. Clearance of outer end of handholds shall be not more than 16 inches from side of car.

(4) *Manner of application*. (i) Handholds shall be flush with or project not more than 1 inch beyond face of end sill.

(ii) End handholds shall be securely fastened with bolts or rivets.

(iii) When marker sockets or brackets are located so that they can not be conveniently reached from platforms, suitable steps and handholds shall be provided for men to reach such sockets or brackets.

(e) *End handrails*. (On cars with projecting end sills.)

(1) *Number*. Four.

(2) *Dimensions*. Minimum diameter, five-eighths of an inch, wrought iron or steel. Minimum clearance, 2, preferably 2½, inches.

(3) *Location*. One on each side of each end, extending horizontally from doorpost or vestibule frame to a point

not more than 6 inches from corner of car, then approximately vertical to a point not more than 6 inches from top of platform end sill; horizontal portion shall be not less than 30 nor more than 60 inches above platform end sill.

(4) *Manner of application*. End handrails shall be securely fastened with bolts, rivets or screws.

(f) *Side-door steps*—(1) *Number*. One under each door.

(2) *Dimensions*. Minimum length of tread, 10, preferably 12, inches. Minimum cross-sectional area, ½ by 1½ inches or equivalent, wrought iron or steel. Minimum clear depth, 8 inches.

(3) *Location*. Outside edge of tread of step not more than 2 inches inside of face of side of car. Tread not more than 24, preferably not more than 22, inches above the top of rail.

(4) *Manner of application*. (i) Steps exceeding 18 inches in depth shall have an additional tread and be laterally braced.

(ii) Side-door steps shall be securely fastened with not less than ½-inch bolts with nuts outside (when possible) and riveted over, or with not less than ½-inch rivets.

(iii) A vertical handhold not less than 24 inches in clear length shall be applied above each side-door step on door post.

(g) *Uncoupling levers*. (1) Uncoupling attachments shall be applied so they can be operated by a person standing on the ground.

(2) Minimum length of ground uncoupling attachment, 42 inches, measured from center line of end of car to handle of attachment.

(3) On passenger-train cars used in freight or mixed-train service, the uncoupling attachment shall be so applied that the coupler can be operated from the left side of car.

§ 231.15 Steam locomotives used in road service.

(a) *Tender till-steps*—(1) *Number*. Four on tender.

(2) *Dimensions*. (i) Bottom tread not less than 8 by 12 inches, metal. (May have wooden treads.)

(ii) If stirrup steps are used, clear length of tread shall be not less than 10, preferably 12, inches.

(3) *Location*. One near each corner of tender on sides.

(4) *Manner of application*. Tender sill-steps shall be securely fastened with bolts or rivets.

(b) *Pilot sill-steps*—(1) *Number*. Two.

(2) *Dimensions*. Tread not less than 8 inches in width by 10 inches in length, metal. (May have wooden treads.)

(3) *Location*. One on or near each end of buffer-beam outside of rail and not more than 16 inches above rail.

(4) *Manner of application*. Pilot sill-steps shall be securely fastened with bolts or rivets.

(c) *Pilot-beam handholds*—(1) *Number*. Two.

(2) *Dimensions*. Minimum diameter, five-eighths of an inch, wrought iron or steel. Minimum clear length, 14, preferably 16, inches. Minimum clearance, 2½ inches.

(3) *Location*. One on each end of buffer-beam. If uncoupling lever extends across front end of locomotive to within 8 inches of end of buffer-beam, and is seven-eighths of an inch or more in diameter, securely fastened, with a clearance of 2½ inches, it is a handhold.)

(4) *Manner of application*. Pilot-beam handholds shall be securely fastened with bolts or rivets.

(d) *Side handholds*—(1) *Number*. Six.

(2) *Dimensions*. Minimum diameter, if horizontal, five-eighths of an inch; if vertical, seven-eighths of an inch, wrought iron or steel. Horizontal, minimum clear length, 16 inches. Vertical, clear length equal to approximate height of tank. Minimum clearance, 2, preferably 2½, inches.

(3) *Location*. (i) Horizontal or vertical. If vertical, one on each side of tender within 6 inches of rear or on corner; if horizontal, same as specified for “Box and other house cars” (see § 231.1(h)(3)).

(ii) One on each side of tender near gangway; 1 on each side of locomotive at gangway; applied vertically.

(4) *Manner of application*. Side handholds shall be securely fastened with not less than ½-inch bolts or rivets.

(e) *Rear-end handholds*—(1) *Number*. Two.

(2) *Dimensions*. Minimum diameter, five-eighths of an inch, wrought iron or steel. Minimum clear length, 14 inches.

Minimum clearance, 2, preferably 2½, inches.

(3) *Location*. Horizontal, one near each side of rear end of tender on face of end sill. Clearance of outer end of handhold shall be not more than 16 inches from side of tender.

(4) *Manner of application*. Rear-end handholds shall be securely fastened with not less than ½-inch bolts or rivets.

(f) *Uncoupling levers*—(1) *Number*. Two double levers, operative from either side.

(2) *Dimensions*. Rear-end levers shall extend across end of tender with handles not more than 12, preferably 9, inches from side of tender with a guard bent on handle to give not less than 2 inches clearance around handle.

(3) *Location*. One on rear end of tender and one on front end of locomotive. Handles of front-end levers shall be not more than 12, preferably 9, inches from ends of buffer-beam, and shall be so constructed as to give a minimum clearance of 2 inches around handle.

(4) *Manner of application*. Uncoupling levers shall be securely fastened with bolts or rivets.

(g) *Couplers*. Locomotives shall be equipped with automatic couplers at rear of tender and front of locomotive.

§ 231.16 Steam locomotives used in switching service.

(a) *Footboards*—(1) *Number*. Two or more.

(2) *Dimensions*. (i) Minimum width of tread, 10 inches.

(ii) Minimum height of back stop, 4 inches above tread.

(iii) Height from top of rail to top of tread, not more than 12 nor less than 9 inches.

(iv) If made of wood, minimum thickness of tread shall be 1½, preferably 2 inches.

(v) Footboards may be made of material other than wood which provides the same as or a greater degree of safety than wood of 1½ inches thickness. When made of material other than wood, the tread surface shall be of anti-skid design and constructed with sufficient open space to permit the elimination of snow and ice from the tread surface.